OSPREY INCUBATION TEMPERATURES: STUDIES WITH A TELEMETERING EGG

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Varney and Ellis (1974) described the construction of a radio-telemetering "egg" which could be used to study aspects of the incubation and nesting biology of large, free-living birds. The radio-egg could transmit information about its surface temperature, internal temperature, and whether or not light was reaching a surface photoelectric cell. Here we report the results of a study using similar radio-eggs to investigate aspects of the incubation biology of the Osprey (*Pandion haliaetus*).

Using the plans of Varney and Ellis (1974), two transmitters were built (by GB). The transmitters were set into domestic duck (*Anas platyrhynchos*) eggs which were then painted to resemble Osprey eggs. The signals from the radio-eggs were experimented with in the laboratory to establish how different temperatures and light conditions affected the signal printout. Multiple regressions of the laboratory data were calculated on the College of William and Mary's IBM 370 computer using the program in the Statistical Analysis System (Barr and Goodnight 1972). Deterministic equations were constructed which related the signal printout to the temperature and light conditions stimulating the radio-egg.

On 6 May 1975 a radio-egg was placed in a nest containing three natural eggs on a pier at Cheatham Annex Naval Supply Station near Williamsburg, Virginia. On 13 May the radio-egg was found to be malfunctioning because of battery failure and was replaced with the second radio-egg. Additionally, the Ospreys had moved the loop antenna from around the cup of the nest to the edge of the nest where it was not picking up any radio signals. The loop antenna was replaced around the cup of the nest, where the Ospreys left it for the duration of this study. On 27 May the nest had two chicks 1 and 3 days old, a natural egg which subsequently hatched, and the radio-egg; the radio-egg and antenna were removed from the nest. All three chicks subsequently fledged.

When the signal printout was subsequently analyzed, it was discovered that the motor driving the printout tape had not run at a constant speed. Consequently, it was impossible to accurately calculate incubation constancy of the Ospreys. However, it was possible to determine incubation temperatures. We have excluded the final 3 days because of the presence of the hatched chicks, and there were about 64 hours for which there is no record because at some egg positions the radio signal was not picked up by the antenna. Based on about 200 hours of signal printout, the mean incubation temperature of the radio-egg in the Osprey nest studied here was 35.9±0.3°C (standard error), ranging from 34.2 to 37.9°C. Although both male and female Ospreys incubate the eggs (Garber and Koplin 1972, Stinson and Bean

unpubl.) no changes in incubation temperature which might be attributed to male/female differences were discernible.

The only other field study of falconiform incubation temperatures of which we are aware is Huggins's (1941) report that Marsh Hawks (*Circus cyaneus*) incubated their eggs at an average temperature of 32.3°C with a range of 28.3-35.4°C.

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ANNOUNCEMENT

In recent years, worldwide interest and concern has grown for the carrion-eating vultures of both the Cathartidae and Accipitridae. It has been proposed that a symposium be held within the next two years to discuss their status and problems. If you are interested in participating in such an exchange, either in person or by submitting a paper for the published proceedings, please contact Sanford R. Wilbur, U. S. Fish and Wildlife Service, 1190 E. Ojai Avenue, Ojai, California USA 93023. Please indicate your particular areas of interest.

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For some time, Dr. Richard Olendorff has served in a dual capacity as both Secretary and Editor for the Foundation; he accepted these tasks with the understanding that the extra assignment was only a temporary arrangement. At the annual meeting recently held in Ithaca, the Board of Directors unanimously approved the appointment of Dr. Donald Johnson of the University of Idaho as Secretary of R. R. F. We are grateful for Don's acceptance, and we thank Butch for his very capable services in the past. Please direct all future business for the Secretary to Don at his address: Department of Biological Sciences, University of Idaho, Moscow, ID 83843.